

This Page Is Inserted by IFW Operations  
and is not a part of the Official Record

## **BEST AVAILABLE IMAGES**

Defective images within this document are accurate representations of the original documents submitted by the applicant.

Defects in the images may include (but are not limited to):

- BLACK BORDERS
- TEXT CUT OFF AT TOP, BOTTOM OR SIDES
- FADED TEXT
- ILLEGIBLE TEXT
- SKEWED/SLANTED IMAGES
- COLORED PHOTOS
- BLACK OR VERY BLACK AND WHITE DARK PHOTOS
- GRAY SCALE DOCUMENTS

**IMAGES ARE BEST AVAILABLE COPY.**

**As rescanning documents *will not* correct images,  
please do not report the images to the  
Image Problem Mailbox.**

# (12) UK Patent Application (19) GB (11) 2 303 500 (13) A

(43) Date of A Publication 19.02.1997

(21) Application No 9514400.2

(22) Date of Filing 14.07.1995

(71) Applicant(s)  
**A C Egerton Limited**

(Incorporated in the United Kingdom)

**Murray Road, Leasons Hill, ORPINGTON, Kent,  
BR5 3QU, United Kingdom**

(72) Inventor(s)  
**Richard Escane**

(74) Agent and/or Address for Service  
**Fry Heath & Spence  
The Old College, 53 High Street, HORLEY, Surrey,  
RH6 7BN, United Kingdom**

(51) INT CL<sup>6</sup>  
**H01R 9/24 4/24**

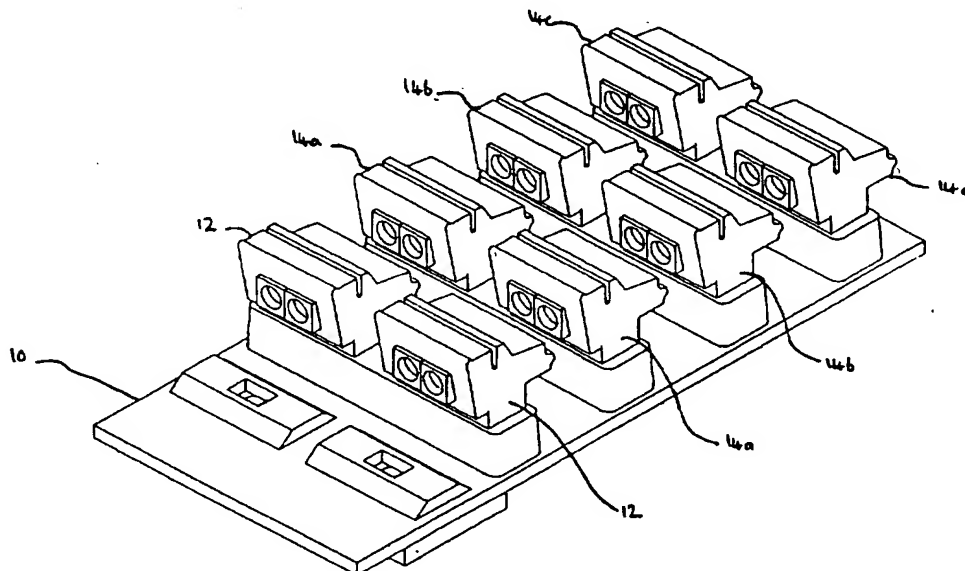
(52) UK CL (Edition O )  
**H2E EPAE  
U1S S2213**

(56) Documents Cited  
**GB 2147464 A US 5330367 A US 4597623 A  
US 4178055 A US 3777223 A US 3617983 A**

(58) Field of Search  
**UK CL (Edition O ) H2E ECJA EDBB EPAE EPAL EPAX  
EPX  
INT CL<sup>6</sup> H01R**

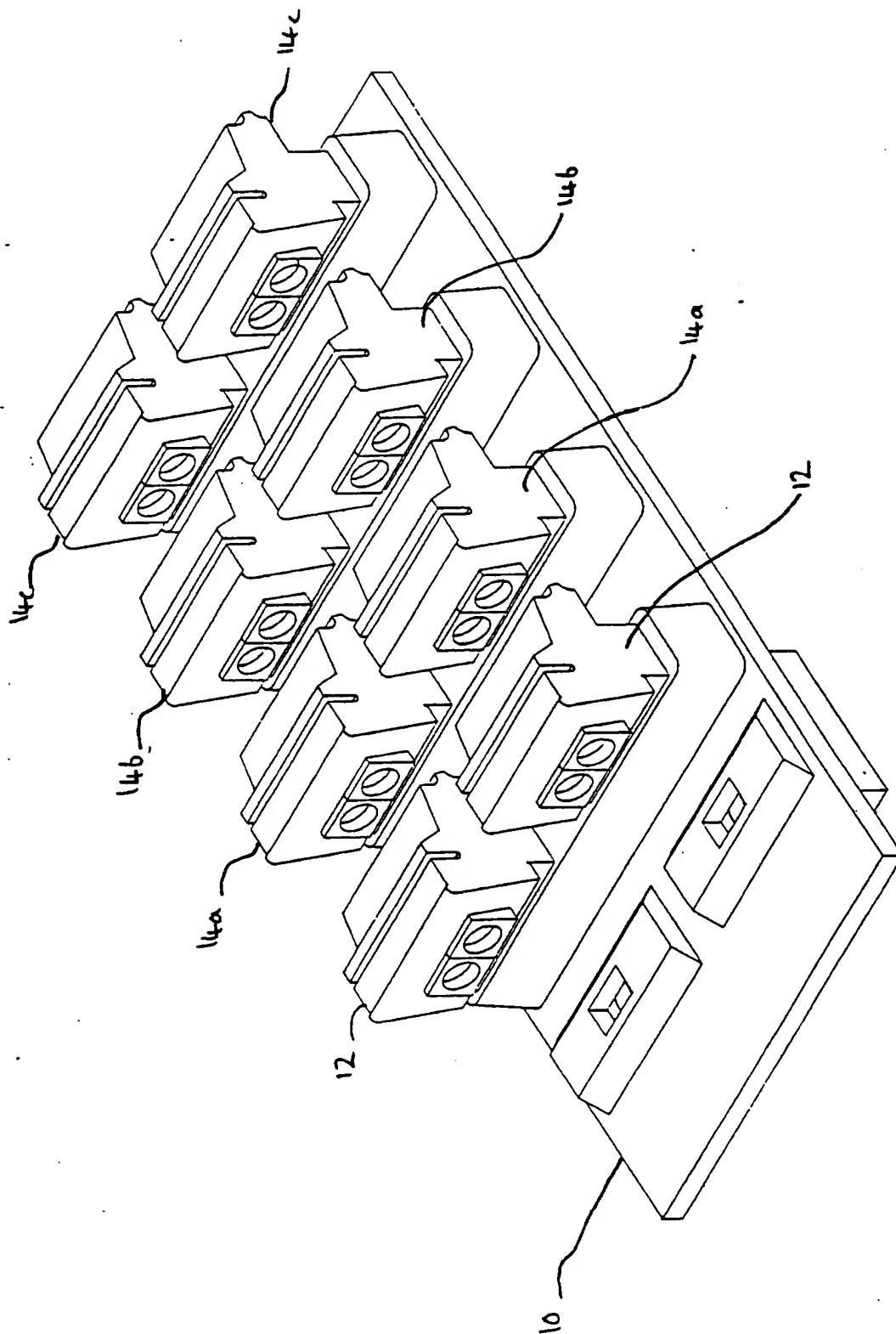
## (54) Terminal block

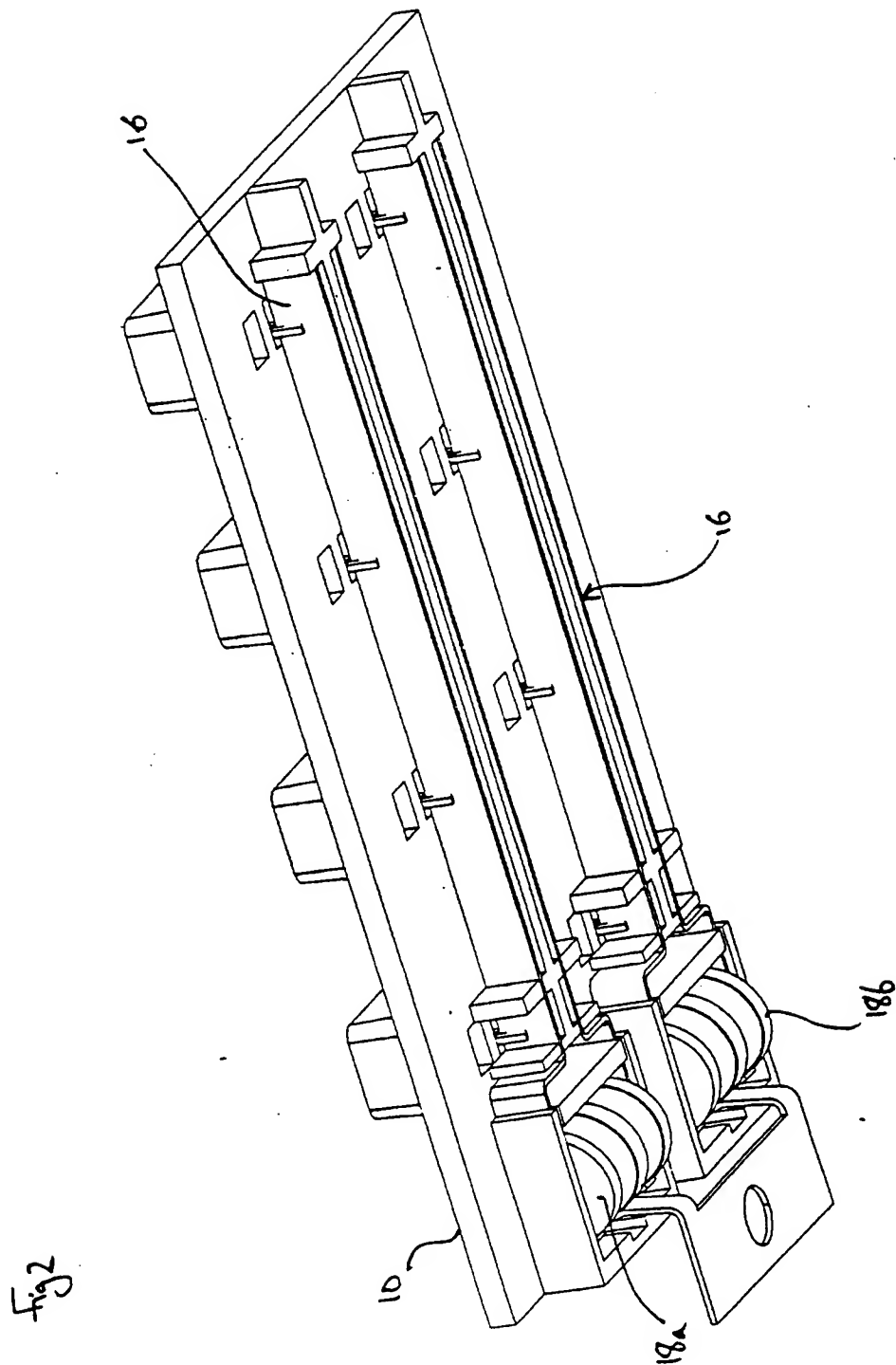
(57) A terminal block (10) has at least one array of at least three IDC connectors (12, 14), one of which is designated a line input (12) and the remainder of which within that array are designated as line outputs (14), each output being electrically connected to its associated input connector, the entire assembly being arranged as a discrete unit. Thus, at a telecommunications interface, for example in an office or residence at the point where an external line arrives, provision is made for accepting the external line and providing for a plurality of internal extensions. Generally, the cost of providing additional terminals ab initio is less than the cost of subsequently upgrading.



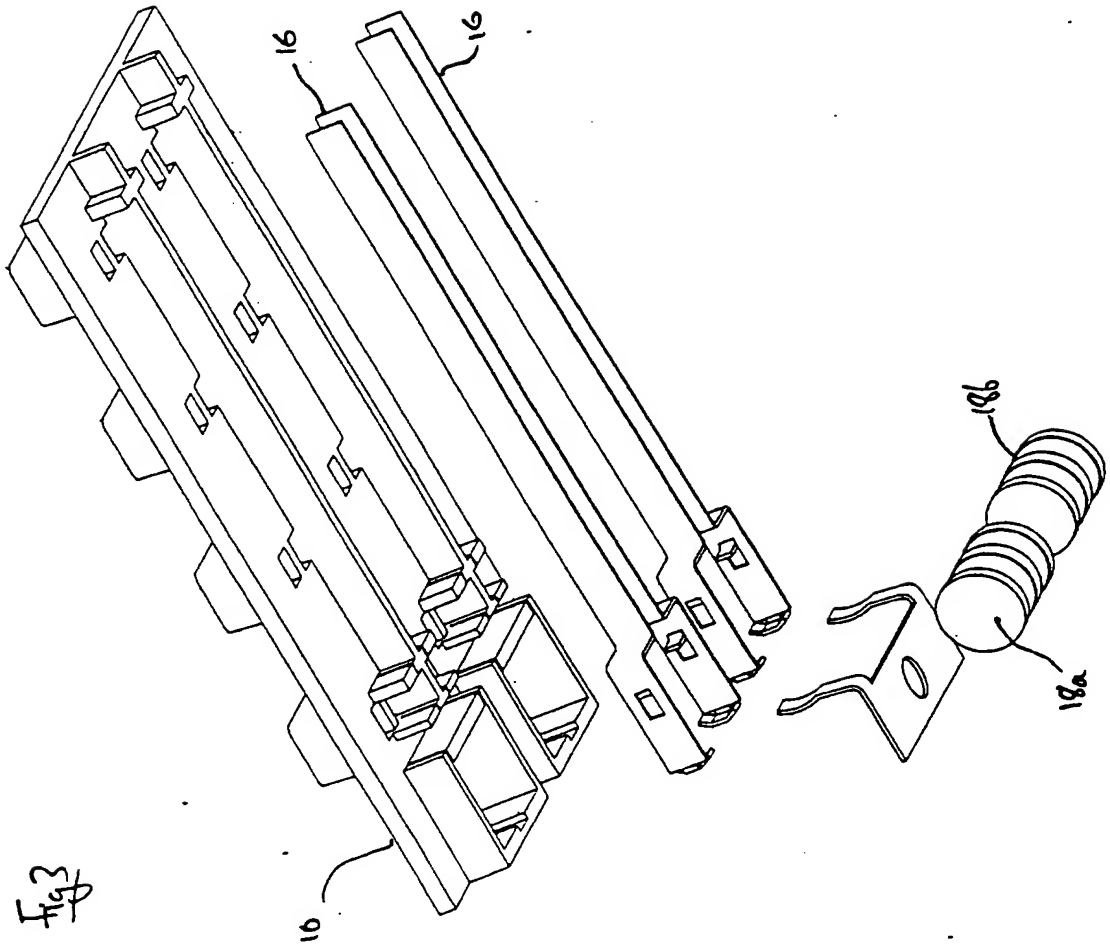
GB 2 303 500 A

1/4





3/4



4/4

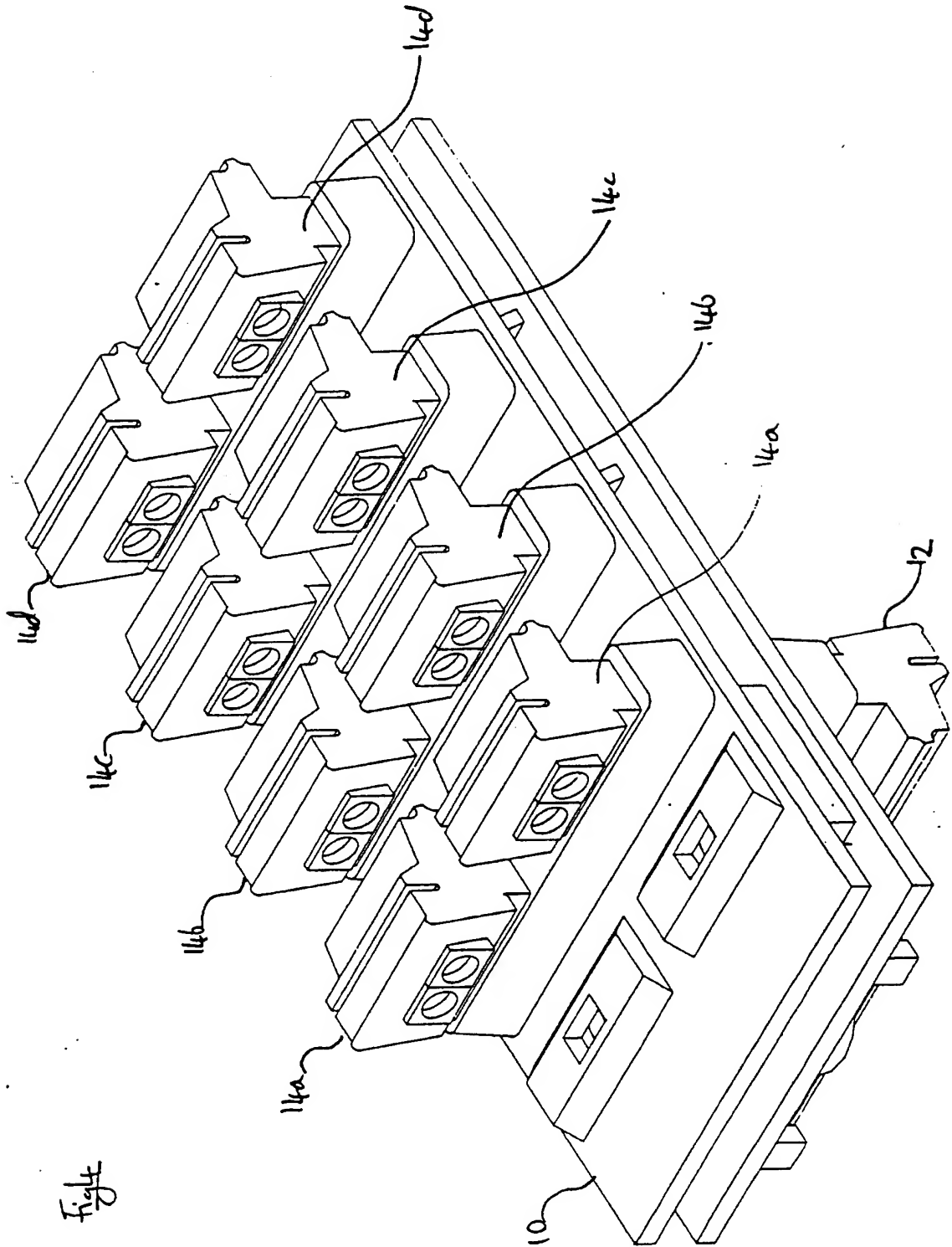


Fig. 4

TERMINAL BLOCK

This invention relates to a terminal block.

An example of a known terminal block is disclosed in EP-A-0220884. In this document, a terminal block has a pair of IDC (insulation displacement connection) connectors, and a movable receptacle for a wire which is adapted to move the wire into and out of engagement with the IDC connectors. Thus, the wires are placed in a receptacle which is then pushed home to make the connection. Such terminal blocks are described as suitable for the telecommunications industry. They can be arranged in arrays of between 5 and 50 pairs, depending on the particular context in which they are to be used.

The present invention provides a terminal block, having at least one array of at least three IDC connectors, one of which is designated a line input and the remainder of which within that array are designated as line outputs,

each output being electrically connected to its associated input connector, the entire assembly being arranged as a discrete unit.

Thus, at a telecommunications interface, for example in an office or residence at the point where an external line arrives, provision is made for accepting the external line and providing for a plurality of internal extensions. The intention is that more output (internal extension) lines would be provided than are considered necessary immediately, to allow for subsequent expansion. Generally, the cost of providing additional terminals *ab initio* is less than the cost of subsequently upgrading.

Thus, the present invention provides a simple, self-contained unit which can be inexpensive to make, providing future upgradeability.

In a preferred form of the invention, a cover member is provided which is adapted to overlies only the input connector or connectors. Thus, these connectors are protected from external damage, whilst the output connectors are available for connection. Preferably, this cover is snap fit or otherwise engagable with the remainder of the unit, for example by screws.

Even more preferably, there is an external cover to seal the unit as a whole.



Embodiments of the present invention will now be described, by way of example, with reference to the accompanying drawings, in which:-

Figure 1 is a perspective view of a terminal block according to the present invention;

Figure 2 is a perspective view of the underside of a partially assembled terminal block according to the present invention;

Figure 3 is a similar view from the underside of the sub-assembly of Figure 2, in the process of being assembled; and

Figure 4 is a perspective view of a terminal block according to a second embodiment of the present invention.

Figures 1 to 3 show a first form of terminal block according to the present invention. Within this terminal block 10, there are a pair of input terminals 12 and associated with each input terminal 12 is a linear array of three output terminals 14a to 14c. Each output terminal 14 is electrically connected to its respective input terminal 12 via conductor 16. The input terminals may be any known IDC or other connector, but are preferably tool-less IDC rocker connectors as available from the Applicants.

On the underside of the block 10 are a pair of overload protection devices 18a and 18b, electrically connected in the usual fashion.

The entire under surface of the block is, in this embodiment, protected by a proprietary potting compound. For clarity, Figures 2 and 3 show the block prior to potting.

The terminal block 10 described forms a discrete unit which can be made inexpensively and thus be used in any (e.g.) telecommunications interface at which up to four internal extensions per line are intended. As mentioned above, the intention is that more output lines are provided than are considered necessary immediately, to allow for subsequent expansion. The manufacture of the unit 10 as a discrete item allows that upgradeability to be provided at little or no additional expense.

Not shown in Figures 1 and 2 is an input cover which clips into place via deformable latches over the input terminals 12. Thus, if a user attempts to upgrade the system himself without seeking professional help, it is abundantly clear which are the input lines (not to be interfered with) and which are the output lines (to be rearranged as necessary). It is intended that this lid 20 be in addition to any overall cover provided for the entire unit.

Figure 4 shows an alternative embodiment, in which there are four output lines 14a to 14d electrically connected to respective input connectors 12. In this embodiment, the input connector 12 is on the reverse side of the unit. This is achieved by providing the unit with a lower floor 20 which supports the input connector 12 in electrical connection with the conductors 16. Thus, the input connector is physically separated from the output connectors and is unlikely to be interfered with by a user. If the unit is installed with the output connectors 14a to 14d visible above a surface, the input connector 12 will be safely hidden.

It will be appreciated by those skilled in the art that the above described embodiments are purely illustrative of the present invention, and that many modifications may be made without departing from the scope of this invention. For example, it is not essential that the individual terminal blocks are arranged transversely to the axis of the unit; they could easily be arranged in a "side to side" arrangement, in which the wire-accepting entrances of each terminal face inward or outward of the unit.

CLAIMS

1. A terminal block, having at least one array of at least three IDC connectors, one of which is designated a line input and the remainder of which within that array are designated as line outputs, each output being electrically connected to its associated input connector, the entire assembly being arranged as a discrete unit.
2. A terminal block according to Claim 1 including a cover member adapted to overlie only the input connector or connectors.
3. A terminal block according to Claim 2 wherein the cover is snap fit or otherwise engageable with the remainder of the unit.
4. A terminal block according to any one of the preceding Claims wherein there is an external cover to seal the unit as a whole.



The  
Patent  
Office  
3

Application No: GB 9514400.2  
Claims searched: 1 to 4

Examiner: F J Fee  
Date of search: 7 May 1996

**Patents Act 1977**  
**Search Report under Section 17**

**Databases searched:**

UK Patent Office collections, including GB, EP, WO & US patent specifications, in:

UK CI (Ed.O): H2E [ECJA, EDBB, EPAE, EPAL, EPAX, EPX]

Int CI (Ed.6): H01R

Other:

**Documents considered to be relevant:**

Category	Identity of document and relevant passage	Relevant to claims
X	GB 2147464 A [SIEMON]	1
X	US 5330367 [JANCZAC] four idc conectors in a block, figures 7 to 11, 23 to 29	1
X	US 4597623 [KRUMREICH]	1
X	US 4178055 [FLEISCHHACKER] idc connectors 28	1
X	US 3777223 [CHANDLER]	1
X	US 3617983 [PATTON]	1

X Document indicating lack of novelty or inventive step  
Y Document indicating lack of inventive step if combined with one or more other documents of same category.

Member of the same patent family

A Document indicating technological background and/or state of the art.  
P Document published on or after the declared priority date but before the filing date of this invention.  
E Patent document published on or after, but with priority date earlier than, the filing date of this application.